Pedometrics Conference 2013 - Report

26 - 31 August 2013; co hosted by CIAT & ICRAF in Nairobi, Kenya

Showcasing innovative research and application of the mathematical, spatial and temporal modeling of soil through interactive discussions and technical sessions

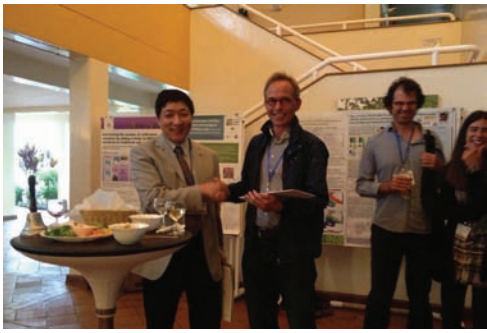
I. Pre-conference Data Analysis Workshop (26-27 August 2013)

Fifty-six participants were exposed to a variety of analytical techniques for mapping soil properties and understanding spatial dependencies of soil variables. Gerard Heuvelink from ISRIC led a workshop highlighting geostatistical techniques, Tomislav Hengl from ISRIC showed products using the GSIF package, and A-Xing Zhu from the University of Wisconsin (and his team of Jing Liu, Lin Yang and Fei Du) led a hands-on tutorial on using SOLIM. This was the largest data analysis workshop hosted by the Pedometrics Division of the IUSS!

II. Pedometrics Main Conference (29-30 August 2013)

Over 65 participants, from fifteen countries were welcomed to Pedometrics 2013 by Director General of ICRAF, Dr. Tony Simons; Director of Soils Research Area at CIAT, Dr. Deborah Bossio; Dr. Anthony Esilaba, Principle Scientist at Kenyan Agricultural Research Institute (KARI), and Dr. A-Xing Zhu, Chair of Division 1.5: Pedometrics of the International Union of Soil Science. This was the first Pedometrics Conference hosted by a CGIAR centre and the first time held in the Tropics!

National media coverage included: Kenya Broadcasting Corporation: *http://www.youtube.com/watch?v=10RBTFrQz44&feature=youtu.be&a; www.scienceafrica.co.ke and our CIAT blog: http://ciatblogs.cgiar.org/soils/pedometrics-comes-to-the-tropics/*

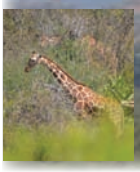


Keynote addresses were also delivered by Dr. Tor Vågen, Senior Scientist at ICRAF and leader of the GeoScience Lab (gsl.worldagroforestry.org) and Marco Nocita on behalf of SOIL ACTION group at the Joint Research Centre of the European Commission.

Main topics discussed at the conference included: new approaches in digital soil mapping; uncertainty analysis; sampling design and scale; advances in proximal and remote sensing; new pedotransfer functions for tropical soils; and analytical techniques for assessing soil organic carbon stocks. At the cocktail party the **best paper awards** for 2010, 2011, and 2012 were given. The references to these papers are posted at www.pedometrics.org. Alexey Sorokin was awarded **best poster presentation** for Pedometrics 2013, presented by Dick Brus of Alterra.

Pedometrics 2013 Field Trip to Laikipia

Overnight trip to Kenya's semi-arid rangelands



Participants visited the Mpala Research Centre (MRC) on the Laikipia Plateau in north-central Kenya. En route, soils under remnant Mt. Kenya forest were viewed and different soil classification systems were discussed (e.g., Russian, Portuguese, WRB and US).

Photographed on the top right, Gerard Heuvelink is reading the WRB definition of an Acrisol, while Colby Brungard (below right) of Utah State University and David Brown of Washington State University classified the soil as a Typic Kandiusult using US Soil Taxonomy.

The Laikipia Plateau - located northwest of Mount Kenya (Africa's second highest mountain at 5,199 m) spans 10,000 km^2 and forms the core of the wider 56,000 km^2 Ewaso ecosystem. The semi-arid rangelands are important grazing lands and encompass privately owned ranches and conservancies as well as community grazing lands for the Maasai and Samburu tribes.

Maasai pastoralists explained current community grazing projects and the importance of maintaining land health due to the fragility of these soils (photo right at the gully erosion site).

At Mpala we viewed landscapes dominated by *Acacia drepanolobium* on vertic soils (below left). Vince Lang is photographed bottom right using HCl to identify carbonates in the soil matrix. Lunch was enjoyed at MRC on the Ewaso Nyiro river (photo bottom right).

The final profile was classified as a Calcisol in the SOTER map, but the group identified it as a Lixisols due to clay illuviation, lack of high amounts of $CaCO_3$, and a pH of 6.5.

Emeritus Russian colleague, Nataliya Belousova, is photographed in this profile (below center). Nataliya was eager to enter each soil pit and explore the properties of tropical soils!